

*Holotype* male, New South Wales, AUSTRALIA, Dec. 1923, H. Peterson (U. S. National Museum, ex Malloch). *Allotype* female, Botany Bay, New South Wales, AUSTRALIA, H. Peterson (U. S. National Museum, ex Malloch).

This is the first species of this genus to be described from the Australian Region. The genus is now known from all parts of the world except the Neotropical Region south of Guatemala and Haiti.

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## Undescribed Species of Crane-Flies from the Western United States and Canada (Dipt.: Tipulidae) Part XV

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The preceding part under this general title was published in ENTOMOLOGICAL NEWS 66: 15-21, 1955. The species considered herewith were taken chiefly by myself while on various collecting trips to the far west. I am greatly indebted to Mr. Borys Malkin for one unusually interesting species from Arizona.

### *Tipula* (*Trichotipula*) *malkini* new species

Size large (wing, male, over 14 mm.); mesonotal praescutum grayish brown, the interspaces darker brown, producing a conspicuous pattern; femora brownish yellow, the tips blackened; wings cream-yellow, handsomely variegated with brown; cell *1st M*<sub>2</sub> small; male hypopygium with the beak of the inner dististyle heavily blackened, long and slender; outer basal lobe conspicuous.

♂. Length about 16 mm.; wing 14.5 mm.

Frontal prolongation of head shiny brown; nasus long and slender; palpi dark brown, the incisures pale. Antennae with the scape and pedicel yellowish brown; flagellum broken. Head with the front, vertex surrounding the antennal bases and the

orbits yellow; posterior vertex brownish gray, with a capillary black central vitta; vertical tubercle low and rounded, entire.

Mesonotal praescutum with the stripes and lateral borders grayish brown, the interspaces dark brown, appearing as a central vitta, lateral borders to the intermediate stripes and as margins encircling the lateral stripes, the central vitta becoming obsolete on the posterior half of the sclerite; scutum dark gray, the lobes conspicuously patterned with brown, including a ring on mesal half and darkened spots at the outer angles; posterior sclerites of notum paler gray, the scutellum with a narrow blackened line; mediotergite darkened on more than the cephalic half of the disk. Pleura and pleurotergite brownish gray, vaguely patterned with obscure yellow, most evident on the dorsal anepisternum, dorsal sternopleurite and across the pteropleurite; dorsopleural membrane chiefly whitened. Halteres with stem yellow, knob dark brown. Legs with the coxae dark brown, sparsely pruinose; trochanters yellow, restrictedly patterned with darker; femora and tibiae brownish yellow, the tips narrowly but conspicuously black, broader on the femora; tarsi elongate, black; claws (male) with a long basal spine. Wings with the restricted ground cream-yellow, best indicated in the cells beyond the cord and in the cubital field; cells *R*, *M* and the Anals with the ground more infuscated; a conspicuous darker brown pattern, as follows: Distal ends of outer radial cells; central streaks in cells  $R_5$  to  $M_4$ , the outer medial veins similarly seamed back from the margin; isolated dark spots in outer end of cell *M* and at near midlength of cell *Cu*; stigma still darker brown, conspicuous; veins dark brown, paler in the costal field. Rather abundant macrotrichia in outer ends of cells  $R_5$ ,  $M_1$  and 2nd  $M_2$ . Venation: *Rs* shorter than *m-cu*; petiole of cell  $M_1$  about twice *m*; cell 1st  $M_2$  small, irregularly pentagonal.  $M_{3+4}$  shortest.

Abdominal tergites obscure yellow, patterned with dark brown, including the disk of the first segment; succeeding segments darkened laterally, outer ones more extensively darkened; sternites yellowed; male hypopygium brownish yellow. Male hypopygium with the ninth tergite transverse, narrowed out-

wardly, the posterior border with a broad U-shaped notch; posterior margin with abundant black spinous setae, stouter and more abundant at and near the lateral angles; setae of disk yellow. Outer dististyle an oval lobe, about two and one-half times as long as broad, with abundant dark setae. Inner dististyle produced into a long slender blackened beak, the lower beak shorter, similarly blackened; bases of beaks with some very long black setae; dorsal crest appearing as a high yellow blade behind the beak, provided with long yellow setae; outer basal lobe conspicuous, only a little smaller than the outer dististyle, oval, narrowly obtuse at apex; surface with abundant delicate setulae, with a few erect black setae on lower part.

*Habitat.* ARIZONA. *Holotype:* ♂, Stewart Forest Camp, Cave Creek Canyon, Chiricahua Mountains, September 14, 1952 (Borys Malkin).

I am pleased to name this handsome crane-fly for the collector, to whom I am greatly indebted for many species from the Western United States and Alaska. It is quite distinct from other regional forms in the large size and conspicuously patterned wings, together with the structure of the male hypopygium. In the nature of the wing pattern it is most as in *Tipula* (*Trichotipula*) *capistrano* Alexander, *T. (T.) geronimo* Alexander, and some others, yet entirely distinct.

#### *Limonia* (*Rhipidia*) *huachucensis* new species

Size large (wing, male, over 9 mm.); general coloration of head and thorax gray, patterned with brown; antennae (male) black, the flagellar segments unipectinate, the branches exceeding the segments in length; knobs of halteres brownish black; femora brownish yellow, the tips rather narrowly dark brown, tibiae and tarsi brownish black; wings whitish subhyaline, patterned with pale brown, the areas chiefly costal in distribution; *Sc* relatively long, *Sc*<sub>1</sub> ending nearly opposite two-thirds *Rs*; *m-cu* at fork of *M*; male hypopygium with the posterior border of tergite convexly rounded, with a relatively small subcircular median notch; gonapophysis with mesal-apical lobe unusually long and slender.

♂. Length about 8.5 mm.; wing 9.5 mm.; antenna about 1.5 mm.

Rostrum dark brown; palpi black. Antennae black, the apical pedicels of the flagellar segments paling to brownish yellow; flagellar segments long-unipectinate, the longest branches exceeding the segments; eleventh flagellar segment merely produced. Head gray, the central part of posterior vertex more darkened; anterior vertex narrow, only about one-third the diameter of the scape.

Pronotal scutum brownish gray medially, paler on sides; scutellum obscure yellow. Mesonotal praescutum gray, patterned with dark brown, including two intermediate stripes that are virtually confluent behind, on anterior half replaced by darker gray, variegated by a capillary blackened line and row of about three blackened spots on the outer margin of the stripe; lateral stripes scarcely darker than the ground, patterned with dark spots at and near their anterior ends; humeral region of praescutum more reddened; posterior sclerites of notum light gray, each scutal lobe with a narrow dark brown longitudinal vitta; mediotergite with a less evident capillary darkening. Pleura gray, patterned longitudinally with vague darker lines; a small black dot immediately beneath the wing root. Halteres with stem pale, knob brownish black. Legs with the coxae pale brown, each with a darker spot on outer face, least distinct on the midcoxae; trochanters yellow; femora brownish yellow, the tips rather narrowly dark brown; tibiae and tarsi brownish black. Wings whitish subhyaline, patterned with pale brown, the areas chiefly costal in distribution; four costal darkenings before the stigma, the outer ones subequal to the interspaces; stigma yellow, the ends darker; cord and outer end of cell *1st M*<sub>2</sub> narrowly seamed with brown; outer cells of wing with pale brown central washes; a small brown cloud near outer end of vein *2nd A*; veins pale brown. Venation: *Sc* relatively long, *Sc*<sub>1</sub> ending nearly opposite two-thirds the length of *Rs*, *Sc*<sub>2</sub> near its tip; *M*<sub>3+4</sub> longer than *M*<sub>4</sub>; *m-cu* at fork of *M*.

Abdomen with the basal tergites bicolored, restrictedly pale basally, more broadly darkened on posterior part; outer ter-

gites uniformly dark brown; sternites pale yellow. Male hypopygium with the tergite transverse, the posterior border convexly rounded, with a relatively small subcircular median notch; setae relatively long and abundant, chiefly restricted to the lobes. Basistyle with the ventromesal lobe simple, bearing a low setiferous flange near base. Dististyles broken. Gonapophysis with the mesal-apical lobe unusually long and slender, the narrow apex a trifle decurved.

*Habitat.* ARIZONA. *Holotype:* ♂, Garden Canyon, Huachuca Mountains, Cochise County, altitude 5200 feet, July 26, 1949.

The present fly is quite distinct from the other Nearctic members of the subgenus, somewhat suggesting a very large *Limonia (Rhipidia) domestica* (O.S.) but differing in the antennal structure and coloration, and in the details of the male hypopygium.

#### ***Pedicia (Tricyphona) aethiops* new species**

Size medium (wing, male, under 9 mm.); general coloration dark brown, the praescutum with three more blackened stripes; legs black, only the femoral bases restrictedly obscure yellow; wings with a strong blackish tinge; vein  $R_{4+5}$  normally present, longer than the basal section of  $R_5$ , producing a venation much as in *diaphana*; cell  $M_1$  present; male hypopygium with the tergite large, its caudal margin with a deep V-shaped notch, producing broad lateral lobes; no lateral tergal arms or interbasal processes; basistyle with two apical lobes, the larger one oval with subappressed black spines; a single long-subtriangular sclerotized dististyle.

♂. Length about 9 mm.; wing 8.5–9 mm.

Head gray, palpi and antennae black.

Thorax almost uniformly dark brown, sparsely pruinose, the praescutum with three more blackish stripes, the centers of the scutal lobes similarly darkened, the markings ill-defined against the ground; posterior borders of scutal lobes and the parascutella yellowed; dorsal part of pleurotergite vaguely pale. Halteres relatively long, dark brown, the base of stem pale.

Legs with the coxae dark brown; trochanters obscure yellow; remainder of legs black, the femoral bases restrictedly obscure yellow. Wings with a strong blackish tinge, the oval stigma still darker, its limits ill-defined; a pale streak in cell *R* adjoining vein *M*, reaching the cord; veins brown. Venation: *R*<sub>s</sub> about equal in length to the distance between *Sc*<sub>2</sub> and its origin; vein *R*<sub>4+5</sub> longer than basal section of *R*<sub>5</sub>, producing a venation virtually as in *diaphana* or *exoloma*; cell *M*<sub>1</sub> present; *m-cu* from about one-third to nearly two-thirds the length of the cell. The paratype specimens show a considerable tendency to variation in certain fields of the wing.

Abdomen, including hypopygium, black. Male hypopygium with the tergite large, the caudal margin with a deep V-shaped emargination to form broad lateral lobes, these pale at apex and here provided with abundant short black setae; remainder of dorsal surface, with the exception of the cephalic third, with rather abundant long strong setae; no lateral tergal arms. Basistyle apparently without an interbasal lobe; two apical lobes, the smaller dorsal one blackened, the margin smooth, surface with long setae; larger lobe oval, with subappressed black spines, those at and near the summit larger. Dististyle a long-subtriangular sclerotized structure, narrowed to the obtuse tip.

*Habitat.* BRITISH COLUMBIA, ALBERTA, MONTANA. *Holotype:* ♂. Along Miette River, below Yellowhead Pass, Jasper National Park, Alberta, altitude 3650 feet. July 24, 1949 (C. P. Alexander). *Paratypes:* ♂, Glacier National Park, Montana, along trail from Two Medicine Lake to No-Name Lake, June 1952 (D. L. Carson and M. E. Smith); several specimens in University of Michigan Collection, Goldstream Park, Vancouver Island, British Columbia, April 3-4, 1950 (Richard Guppy).

The venation of the present fly is very much as in *Pedicia* (*Tricyphona*) *diaphana* (Doane) or *P. (T.) exoloma* (Doane), but the male hypopygium is entirely different from that in members of this group, being generally more as in certain species that have been referred to the genus *Dicranota*, as *Dicranota* (*Rhaphidolabis*) *stigma* (Alexander) and *D. (R.) uniplagia* Alexander.

***Limnophila lobifera*** new species

Size medium (wing, male, 10 mm.); general coloration of praescutum brownish yellow, with four brownish black stripes; pseudosutural foveae black, conspicuous; antennae (male) elongate, black throughout; halteres pale yellow; femora yellow basally, the tips blackened, tibiae and tarsi black; wings faintly tinged with yellow, restrictedly patterned with brown; *Rs* relatively long, nearly four times *m-cu*; cell *1st M*<sub>2</sub> narrow, widened outwardly; male hypopygium with the basistyle produced into a conspicuous lobe; apex of outer dististyle divided into two inconspicuous teeth; phallosome with the aedeagus very small, the subtending apophyses with microscopic spines.

♂. Length about 10 mm.; wing 10 mm.; antenna about 4 mm.

Rostrum dark brown; palpi black. Antennae black throughout, relatively long, only a little less than one-half the wing; flagellar segments elongate-oval, longer than the verticils; segments with a further conspicuous erect pubescence. Head dark gray; a weak tubercle on anterior vertex behind the antennal fossae; anterior vertex glabrous, posterior vertex with abundant black setae.

Pronotum dark gray. Mesonotal praescutum with the ground brownish yellow, with four conspicuous brownish black stripes, the intermediate pair only slightly separated; pseudosutural foveae large and conspicuous, black; posterior sclerites of notum light gray, the lateral parts of the lobes and the parascutella blackened. Pleura dark gray; dorsopleural membrane darkened. Halteres pale yellow. Legs with the coxae yellow, sparsely pruinose, the fore pair more heavily so and narrowly darkened at base; trochanters yellow; femora yellow basally, passing into brownish yellow, the tips narrowly blackened; tibiae and tarsi black. Wings faintly tinged with yellow, the prearcular and costal fields a little more so; a restricted brown pattern, including areas at origin of *Rs*, cord and outer end of cell *1st M*<sub>2</sub>; stigma; forks of *R*<sub>2+3+4</sub> and *M*<sub>1+2</sub>, and as evident seams over vein *Cu* and outer end of *M*; veins light brown, darker in the patterned areas, brightened in the costal and pre-

arcular fields. Venation: *Rs* relatively long, as compared to the species of the *ferruginea* group, nearly four times *m-cu*;  $R_{1+2}$  only about one-half  $R_2$ ; cell 1st  $M_2$  narrow, widened outwardly, with *m-cu* at or beyond midlength; cell  $M_1$  a little longer than its petiole.

Abdominal tergites more or less infuscated medially, the sides obscure yellow; sternites clearer yellow; a narrow black sub-terminal ring; hypopygium obscure yellow. Male hypopygium with the basistyle produced into a stout lobe. Outer dististyle moderately broad, as compared with *bigladia* and allies, glabrous, the apex narrowed and blackened, split into two inconspicuous teeth; inner dististyle a little smaller, narrowed into a slender straight rod, the apex blackened, obtuse. Phallosome including a very small aedeagus, subtended by darkened inturned apophyses, the tips of these with microscopic spines; a second pair of flattened paddle-like outer gonapophyses.

*Habitat.* BRITISH COLUMBIA. *Holotype*: ♂, Alaska Highway Mile Post 128, June 25, 1952 (C. P. Alexander); along small stream, swept from willow, dwarf birch and shrubby cinquefoil.

The most similar species include the Palearctic *Limnophila conifera* Lackschewitz and *L. pernigrita* Alexander, which differ in the structure of the male hypopygium. It does not appear to me that *conifera* is a synonym of *L. squalens* Zetterstedt, as has been indicated by some authors.

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### Nomenclature Notice

All comments relating to the following should be marked with the file number and sent to Francis Hemming, 28 Park Village East, Regent's Park, London N.W.1, England.

**Entomobrya** Rondani, 1861 (Order Collembola), validation of (pp. 75-77) (File: Z.N.(S.)485).

For details see: *Bull. Zool. Nomencl.* Vol. 11, Part 3.